Small Business Innovation Research/Small Business Tech Transfer

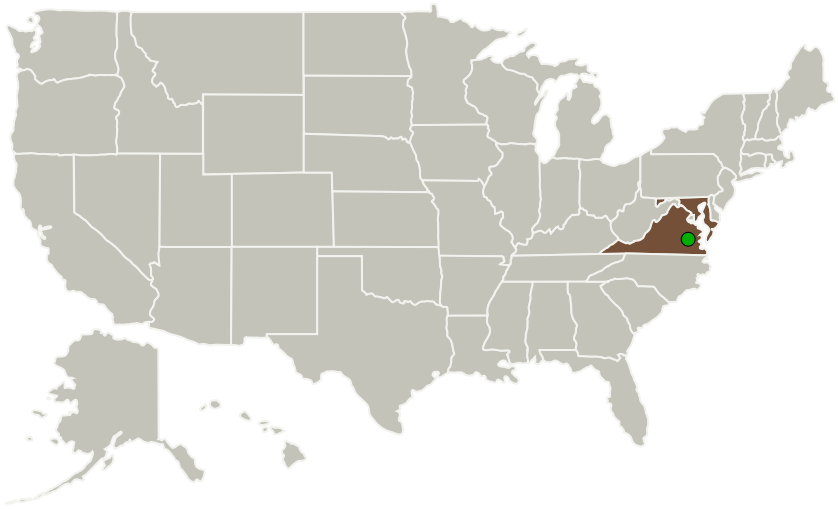
Safety Analysis For Evaluating (SAFE) sUAS, Phase I

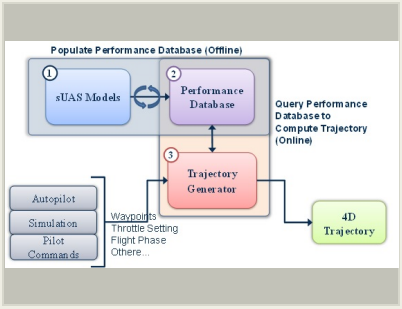
Completed Technology Project (2016 - 2016)

Project Introduction

NASA's Unmanned Aircraft Systems Integration in the NAS (UAS in the NAS) project is aimed at developing new technologies to enable safe operations of UAS in the NAS. Under the UTM program NASA plans to investigate procedures that can make sUAS operations for all stakeholders. Safety and operations studies under UTM will require accurate trajectories for sUASs. Since there are no sUAS flights permitted by FAA there is no real world trajectory data available to model trajectories reliably and accurately. To this end IAI has been developing USAM over the last several years as part of a NASA sponsored effort. The architecture is well developed and has been used to demonstrate the safety and efficiency impacts of integrating large fixed wing UASs in the NAS. SAFE sUAS project will extend the USAM approach to UAS safety analysis to cover sUAS missions. Extending USAM capabilities to sUAS requires additional capability to model sUAS (multirotor, fixed wing and hybrid) trajectories. This effort will develop high fidelity models for one multi-rotor sUAS and use it to analyze operating them in the NAS.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Intelligent Automation, Inc.	Lead Organization	Industry	Rockville, Maryland
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations	
Maryland	Virginia

Project Transitions

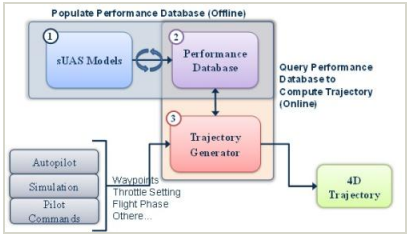
June 2016: Project Start

December 2016: Closed out

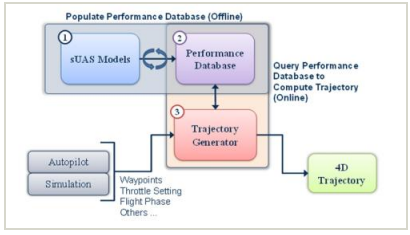
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139790)*

Images



Briefing Chart Image
Safety Analysis For Evaluating (SAFE) sUAS, Phase I *(https://techport.nasa.gov/image/132435)*



Final Summary Chart Image
Safety Analysis For Evaluating (SAFE) sUAS, Phase I Project Image *(https://techport.nasa.gov/image/127701)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Intelligent Automation, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

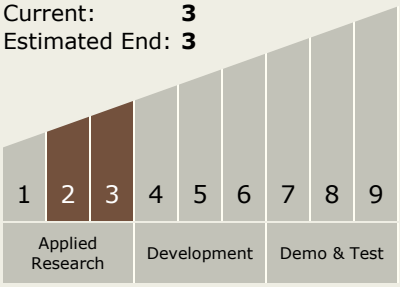
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Ankit Tyagi

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



Safety Analysis For Evaluating (SAFE) sUAS, Phase I

Completed Technology Project (2016 - 2016)

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.1 Software Development, Engineering, and Integrity
    - TX11.1.7 Frameworks, Languages, Tools, and Standards

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System